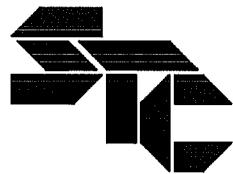


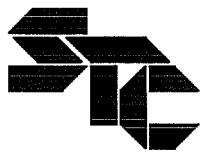
**Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi**

Prepared For

**Neel-Schaffer, Inc.
Jackson, Mississippi
June 13, 2008**



**SoilTech Consultants, Inc.
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING**



SOILTECH CONSULTANTS, INC.

Geotechnical and Environmental Engineering

230 Highpoint Drive
Ridgeland, Mississippi 39157
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Jackson, Mississippi 39236
(601) 952-2995 / (601) 952-2944 fax

June 13, 2008

Neel-Schaffer, Inc.
Post Office Box 22625
Jackson, Mississippi 39225-2625
Attention: Mr. Mark Bailey, P.E.

Project No. 1470.01 Revised

Re: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

Gentlemen:

Submitted herein is the report of our investigation of existing pavement and subgrade conditions for the proposed repair and rehabilitation on three roadways and associated parking areas within the Vicksburg National Military Park. This work was performed in accordance with our proposal furnished to Mr. Mark Bailey, P. E. and subsequently approved.

This report presents the results of an investigation made to determine suitable pavement sections for the proposed roadways to be reconstructed. Details of our recommendations related to pavement sections are included in the body of this report.

We appreciate the opportunity of providing services to you. If we can answer any questions or provide additional information, please call.

Very truly yours,
SoilTech Consultants, Inc.

A handwritten signature in black ink that reads "Charles R. Furlow".

Charles R. Furlow, P.E.

Copies Submitted: (4)

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FIGURES

- Graphical Boring Logs
- Symbols and Soil Classifications

APPENDIX A

- Boring Location Maps

tests performed within the clayey silts yielded blow counts (N) varying from 6 blows per ft to 18 blows per ft. Two sets of Atterberg limit tests performed within the clayey silts yielded liquid limits of 24% and 36%, plastic limits of 16% and 24% and corresponding plasticity indices of 8 and 12. The moisture content of the clayey silts varied from 12% to 24%.

5.2 Confederate Avenue (Route 12). Borings 5 through 15 were drilled in the roadway areas along Confederate Avenue. The pavement section generally consists of concrete pavement varying in thickness from 4 in. to 8 in. The reach typified by Borings 13 and 14 (Stas. 255+00 and 265+00) consists of 3.5 in. to 4 in. of concrete pavement overlain by 1.5 in. to 2.5 in. of asphalt paving. At the location of Boring 15 (Sta. 306+60), the pavement section consists of 4.5 in. of asphalt with a 6.5-in. red sand with gravel subbase.

Beneath the pavement sections along Confederate Avenue are soft to very stiff silty clays (A-4 and A-6). Standard penetration tests performed within the silty clays yielded blow counts (N) varying from 3 blows per ft to 24 blows per ft. Atterberg limit tests performed on selected samples yielded liquid limits ranging from 30% to 40%, plastic limits varying from 16% to 24% and corresponding plasticity indices ranging from 8 to 19. The moisture content of the silty clays along this reach varied from 12% to 24%.

5.3 South Loop Tour Road (Route 19). Borings 16 through 22 were drilled in the roadway area along the South Loop Road. The pavement section along the South Loop Road consists primarily of asphalt pavement overlying sand with gravel subbase materials. The asphalt thickness varies from 3 in. to 4 in. while the underlying subbase material varies from 6 in. to 7 in. in thickness. No subbase materials were observed at the location of Boring 22 (Sta. 635+00). Concrete pavement was observed at the location of Boring 18 (Sta. 545+00) with a thickness of 5.5 in.

Below the pavement surfaces are stiff to very stiff silty clays (A-4 and A-6) and medium dense clayey silts (A-4, A-6 and A-7). Standard penetration tests performed within the silty clays yielded blow counts varying from 8 blows per ft to 18 blows per ft. Atterberg limit tests performed on selected samples yielded liquid limits varying from 32% to 38%, plastic limits ranging from 16% to 23% and corresponding plasticity indices varying from 10 to 16. The moisture content of the silty clays varied from 14% to 21%.

Standard penetration tests performed within the clayey silts yielded blow counts varying from 5 blows per ft to 12 blows per ft. Atterberg limit tests performed on two selected samples yielded liquid limits of 34% and 41%, plastic limits of 23% and corresponding plasticity indices of 11 and 18. The moisture content of the clayey silts ranges from 17% to 22%.

5.4 Groundwater Conditions

Groundwater conditions at the site were determined by observing water levels in the borings upon completion. Groundwater was not encountered in any of the borings. Notes pertaining to groundwater level observations are presented in the lower left portion of each graphical boring log. Proper note should be taken that groundwater conditions will fluctuate seasonally with variations in rainfall and other environmental factors.

6.0 GUIDELINE PAVEMENT REPAIR RECOMMENDATIONS

Several reaches of the three roadways will be repaired by removing the existing pavement and reconstructing the pavement sections. Replacement pavement will generally be the same as that removed. Recommendations related to areas to be reconstructed are included in the following paragraphs.

thick aggregated base, 2-in. thick binder course and 2-in. thick surface course. The aggregated base material should be grading C and D in accordance with paragraph 703.03 of FP – 03. Aggregated base should be compacted to at least 98% of maximum density as determined by standard proctor procedures (AASHTO T99).

Nomographs developed by the Mississippi Department of Transportation (MDOT) for rigid pavement design were used for the analyses. Utilizing a CBR value of 5, a modulus of support of 150 pci and the reported average daily traffic, a rigid pavement with a minimum thickness of 6 in. is recommended. We also recommend a 6-in. thick crushed stone base be utilized beneath the concrete pavement.

6.3 Asphalt Overlays

Based on experience, asphalt overlays should be a minimum of 1.5-in. to 2-in. in thickness. We recommend any overlay areas be upgraded to meet the minimum design sections as discussed above.

Most pavement failures are due to lack of proper drainage. Therefore, we strongly recommend proper slopes and drainage for all pavement areas.

7.0 REPORT LIMITATIONS

The borings made for this report were located in the field by measurements from existing features shown on your site plan and survey stations. The locations of the borings should therefore be considered accurate only to the degree implied by the methods used in their determination. The boring logs shown in this report contain information related to the types of soils encountered at specific locations and times and show lines delineating the interface between these materials, as well as results of laboratory tests performed on representative samples. The logs also contain our field representative's interpretation of soil conditions that are believed to exist in those depth intervals between the actual samples taken. Therefore, the boring logs contain both factual and interpretative information. It is not warranted that the logs are representative of subsurface conditions at other locations and times.

With regard to groundwater conditions, this report presents data on groundwater levels as they were observed during the course of the field work. In particular, water level readings have been made in the borings at the times and under conditions stated in the text of this report and on the boring logs. It should be noted that fluctuations in the groundwater level can occur with passage of time due to variations in rainfall, temperature and other factors.

The analyses, conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our field investigation and further on the assumption that the exploratory borings are representative of the subsurface conditions throughout the site, that is, that the subsurface conditions everywhere are not significantly different from those disclosed by the borings at the time they were completed.

This report has been prepared for the exclusive use of Neel-Schaffer, Inc. for assessing feasibility for the proposed repair and rehabilitation on select roads in the Vicksburg Military Park development in Vicksburg, Mississippi. The only warranty made by us in connection with the services provided is that we have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty, expressed or implied, is made or intended.

TABLE A-2 *

METHOD OF ESTIMATING CBR

FOR

A-2 AND A-3 SOILS

AASHTO Soil Class	UNIFIED Soil Class(es)	PLASTICITY Index	PERCENT PASSING No. 40 Sieve	STANDARD Density	ESTIMATED CBR
A-3	"S" Soils AND "G" Soils	NP	-	≤ 116	11-15
				117-119	16-20
				> 119	20+
A-2	"S" Soils	7-12	-	-	24
		1-6	-	-	26
		NP	95-100	-	26
		NP	85-94	-	28
		NP	< 85	-	30
	"G" Soils	15	-	-	45
		14	-	-	46
		13	-	-	47
		12	-	-	48
		11	-	-	49
		10	-	-	50
		9	-	-	51
		8	-	-	52
		7	-	-	53
		6	-	-	54
		5	-	-	55
		4	-	-	56
		3	-	-	57
		2	-	-	58
		1	-	-	59
		NP	-	-	60

Controlling Data:

A-3 Soils - Standard Density

A-2 Soils - Plasticity Index and/or Percent Passing No. 40 Sieve

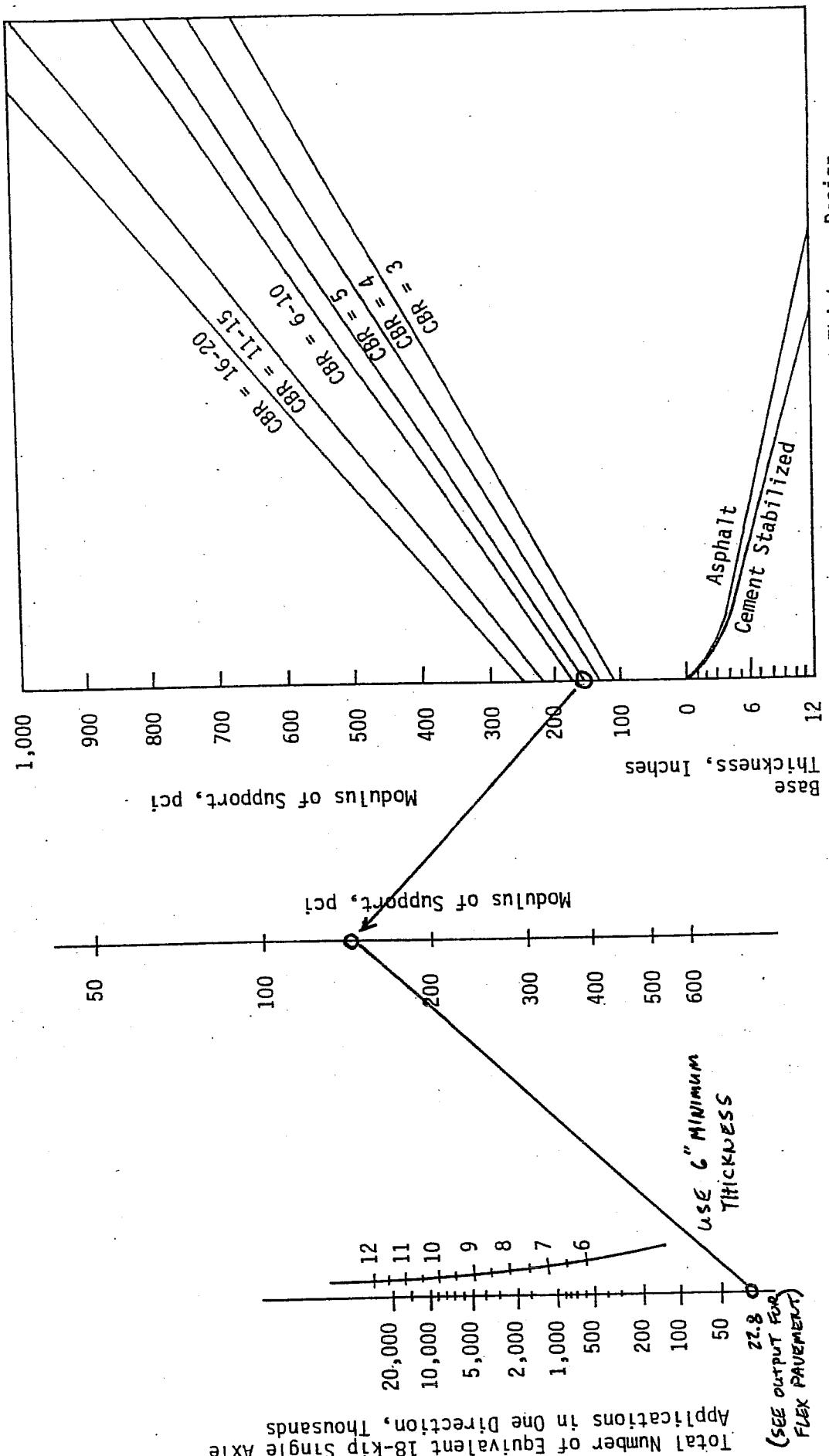


Figure 7. Pavement and base design for ALL types of rigid pavement (continuous, jointed, plain and reinforced) and either asphalt or cement stabilized base.

DATE: July 3, 2007
 USER: C. Furlow
 PROJECT NO.: 1470.01
 COUNTY: Warren
 DESCRIPTION: Vicksburg Military Park

<u>Traffic Projection Program</u>					
Current Year:	2008				
Current ADT:	250	Flex Rate (/1000):	975	Rigid Rate (/1000):	1445
Future Year:	2028				
Future ADT:	250	Flex Rate (/1000):	1025	Rigid Rate (/1000):	1505
Growth Rate (%)	0.00	Growth Rate (%)	0.25	Growth Rate (%)	0.20
Desired Initial Year	2008				
ADT	250	Flex Rate (/1000):	975	Rigid Rate (/1000)	1445
10th Year	2018				
ADT	250	Flex Rate (/1000):	1000	Rigid Rate (/1000)	1475
20th Year	2028				
ADT	250	Flex Rate (/1000):	1025	Rigid Rate (/1000)	1505

DATA FOR STRUCTURE NUMBER CALCULATION					
ADT			DHV	D	T-Total
2008	2018	2028	300	50	3
250	250	250			
RIGID RATES (/1000)			10		
2008	2018	2028	2008	2018	2028
1445	1475	1505	975	1000	1025
CBR =	5		PT = 2.5		

REQUIRED STRUCTURE NUMBER

<u>2018</u>		<u>2028</u>	
ESAL	11,262	ESAL	22,813
SN (Reqd)	1.89	SN (Reqd)	2.14 (Min.)

DATE: July 3, 2007
USER: C. Furlow
PROJECT NO.: 1470.01
COUNTY: Warren
DESCRIPTION: Vicksburg Military Park

STRUCTURAL ANALYSIS

STAGE 1

2.00	HMA (9.5 mm Mix) @	0.44	0.88
2.00	HMA (12.5 mm Mix) @	0.44	0.88
0.00	HMA (19 mm Mix) @	0.44	0.00
0.00	HMA (25 mm Mix) @	0.34	0.00
0.00	Crushed Stone	0.14	0.00
0.00	Soil Cement Treated G.M.	0.20	0.00
0.00	LFA Treated G.M.	0.20	0.00
6.00	Granular Material	0.10	0.60
	SN =		2.36

FIGURES

***Graphical Boring Logs
Symbols and Soil Classifications***

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

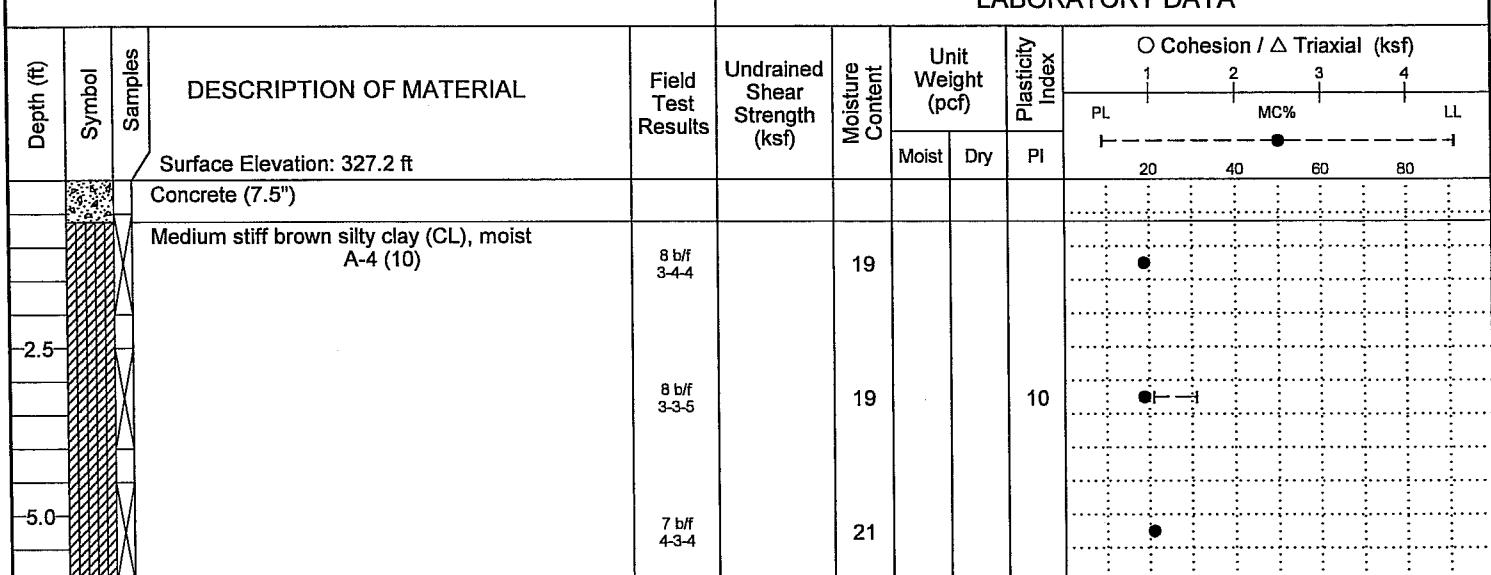
No. B-5
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

Location: Confederate Avenue Station 110+00

LABORATORY DATA



Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-6
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 125+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry		1	2	3	4
									PL	MC%	LL		
Surface Elevation:	337.1 ft												
Concrete (4.5")													
Very stiff tan silty clay (CL), moist A-6 (20)				24 b/f 4-10-14		14			19				
2.5					21 b/f 10-11-10		13						
5.0					20 b/f 14-10-10		12						
Terminal Depth at 6.0 ft													
7.5													
10.0													
12.5													
15.0													
17.5													

5/13/08 GEOTECHNICAL TEMPLATE GDT 1470.01.GPJ

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-7
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 141+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry		1	2	3	4
							PL	MC%	LL				
							1	2	3	4	5	6	
Surface Elevation:	340.4 ft												
Concrete (4")													
Medium stiff tan silty clay (CL), moist A-6 (14)													
2.5				7 b/f 2-3-4		24							
5.0				6 b/f 2-3-3		23			13				
5.0				6 b/f 2-3-3		21							
Terminal Depth at 6.0 ft													
-7.5													
-10.0													
-12.5													
-15.0													
-17.5													

5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-8
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 151+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
							PL		MC%	LL				
0.0			Surface Elevation: 318.4 ft											
0.0 - 2.5			Concrete (4")											
0.0 - 2.5			Soft tan silty clay (CL), moist to wet A-6 (13)		4 b/f 2-2-2			17		14				
2.5 - 5.0					4 b/f 3-2-2			20						
5.0 - 6.0					3 b/f 3-1-2			24						
6.0			Terminal Depth at 6.0 ft											

SOIL BORING LOG 1470.01 GPJ GEOTECHNICAL TEMP/LATE GDT 5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-9
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 169+50

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry		PL	1	2	3
									MC%	LL			
			Surface Elevation: 355.2 ft										
0.0			Concrete (4")										
2.5			Very stiff tan silty clay (CL), moist A-4 (8) - medium stiff below 2.5'	17 b/f 9-10-7		16							
5.0				6 b/f 3-3-3		15							
				7 b/f 3-3-4		14			8		●	—	—
			Terminal Depth at 6.0 ft										
-7.5													
-10.0													
-12.5													
-15.0													
-17.5													

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

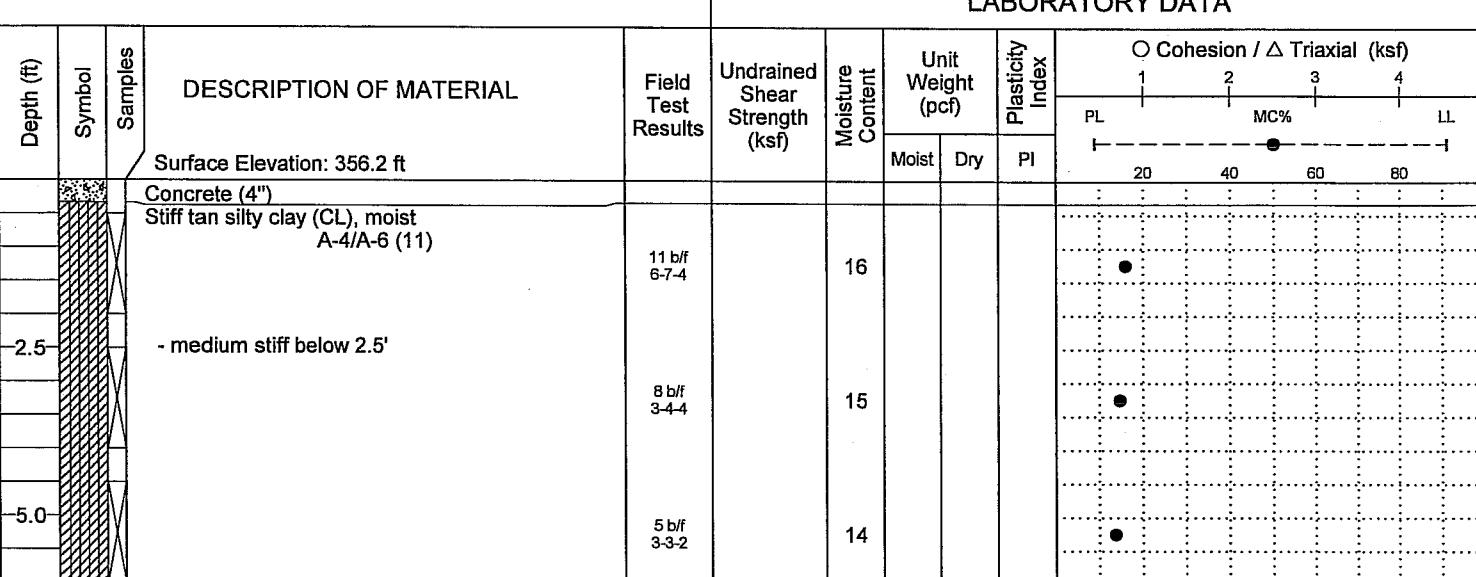
CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-10
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 183+00

LABORATORY DATA



Terminal Depth at 6.0 ft

SOIL BORING LOG 1470.01.GPJ GEOTECHNICAL TEMPLATE GDT 5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

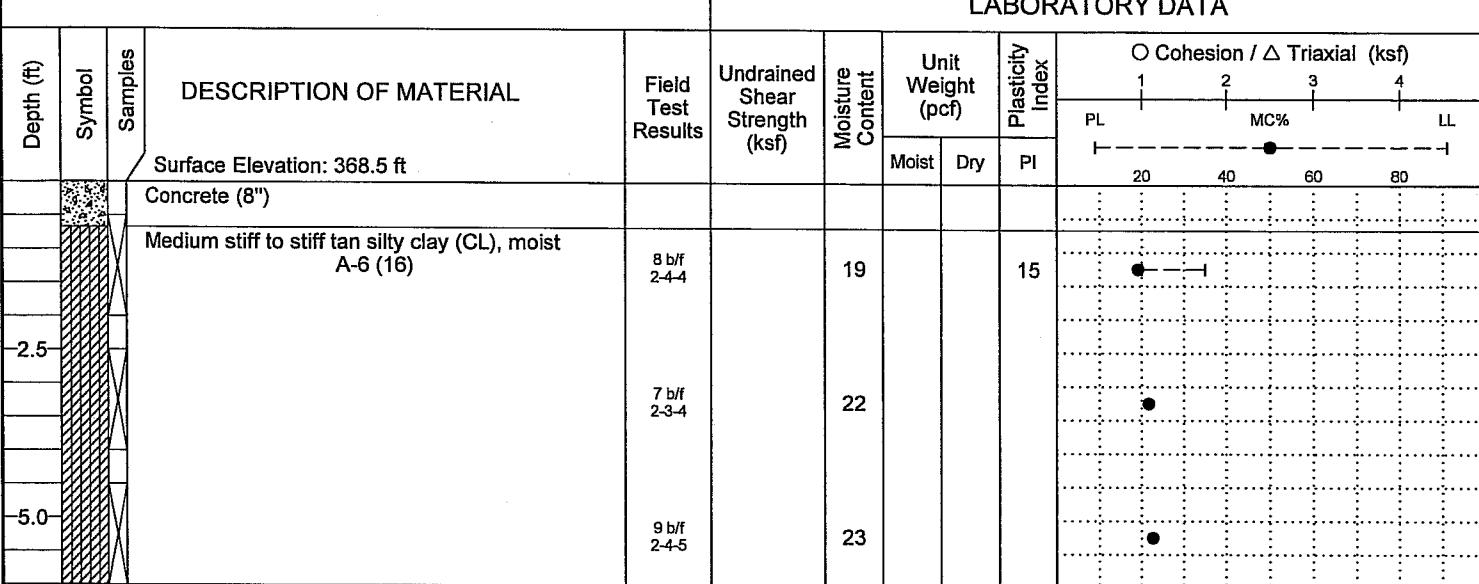
CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-11
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/24/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 194+00

LABORATORY DATA



Terminal Depth at 6.0 ft

SOIL BORING LOG 1470.01.GPJ GEOTECHNICAL TEMPLATE, GDT 5/13/08

Groundwater Observations		Advancement Method	Notes
No groundwater encountered		0 - 6 ft: Machine Auger	
		Abandonment Method	
		Boring backfilled with soil cuttings	

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-12
SHEET 1 OF 1

PROJECT NO.: 1470.01

DATE: 5/25/07

DRILLER: J. Ray

TECHNICIAN: M. Huff & T. Whitaker

ENGINEER: C. Furlow

Location: Confederate Avenue Station 236+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
			Surface Elevation: 353.3 ft							PL		MC%	LL	
			Concrete (5")											
			Stiff tan and light gray silty clay (CL), moist A-6 (19)		14 b/f 9-7-7	15								
2.5			- medium stiff below 2.5'		7 b/f 3-3-4	23				17				
5.0					4 b/f 3-2-2	22								
Terminal Depth at 6.0 ft														

Terminal Depth at 6.0 ft

SOIL BORING LOG 1470.01.GPJ GEOTECHNICAL TEMPLATE.GDT 5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

**PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi**

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-13
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

SOIL BORING LOG 14700	Groundwater Observations	Advancement Method	Notes
	No groundwater encountered	0 - 6 ft: Machine Auger Abandonment Method Boring backfilled with soil cuttings	

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

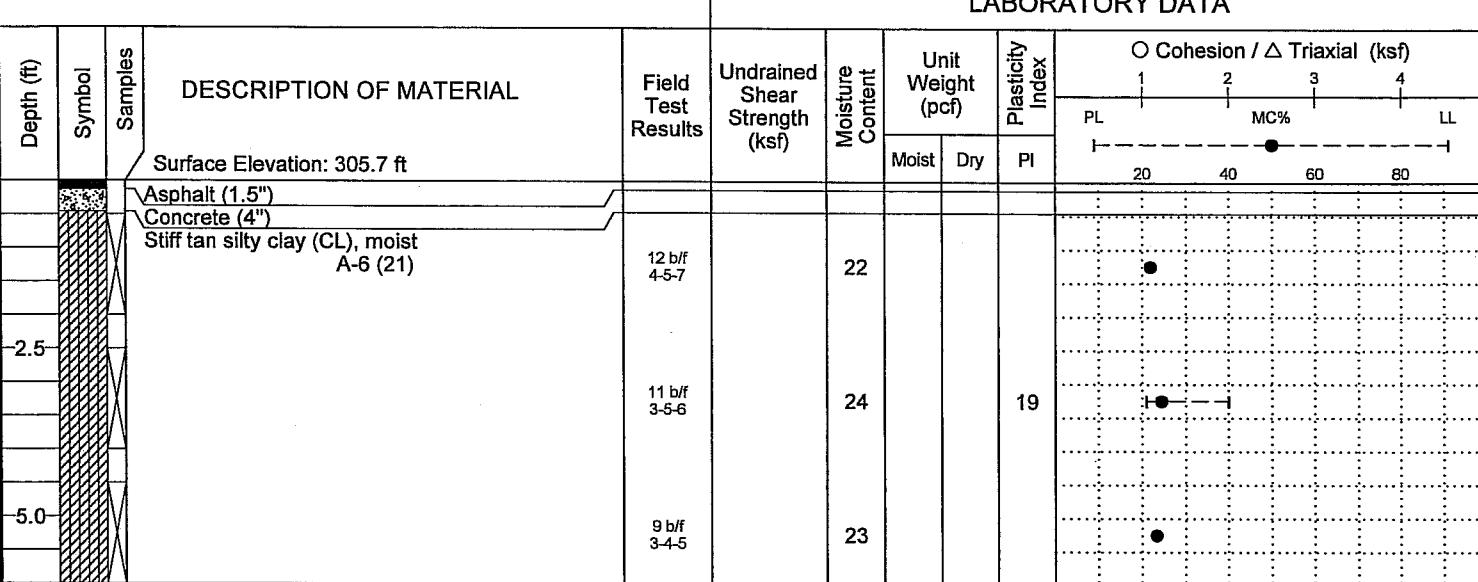
CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-14
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 265+00

LABORATORY DATA



Terminal Depth at 6.0 ft

SOIL BORING LOG 1470.01 GPJ GEOTECHNICAL TEMPIATE GDT 5/30/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SoilTech Consultants, Inc.

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-15
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: Confederate Avenue Station 306+60

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
										PL	MC%	LL		
			Surface Elevation: 285.9 ft											
			Asphalt (4.5")											
			Medium dense red sand (SUBBASE) (6.5")											
			- with gravel											
			Stiff tan silty clay (CL), moist A-6 (14)	13 b/f 8-8-5		21					●			
2.5			- medium stiff below 2.5'	5 b/f 2-2-3		23					●			
5.0				5 b/f 2-2-3		24				12	●	●	●	

Terminal Depth at 6.0 ft

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-16
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 505+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	O Cohesion / Δ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
							PL	MC%	LL					
			Surface Elevation: 263.6 ft											
			Asphalt (3")											
			Medium dense red sand (SUBBASE) (7")											
			- with gravel											
			Very stiff brown silty clay (CL), moist A-6 (17)	16 b/f 8-8-8		19								
2.5			- stiff below 2.5'		10 b/f 5-5-5		21			16				
5.0			- gray from 5' to 5.5'		9 b/f 3-5-4		21							

Terminal Depth at 6.0 ft

-7.5
-10.0
-12.5
-15.0
-17.5

SOIL BORING LOG 1470.01.GPJ GEOTECHNICAL TEMPLATE.GDT 5/30/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SoilTech Consultants, Inc.

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-17
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 530+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
							PL		MC%	LL				
Surface Elevation:	284.5 ft													
Asphalt (3.5")														
Medium dense red sand (SUBBASE) (6.5")														
- with gravel														
Stiff brown silty clay (CL), moist A-6 (15)				15 b/f 8-7-8		14				16	●	—	—	
2.5				12 b/f 5-6-6		18					●			
5.0				9 b/f 3-5-4		20					●			
Terminal Depth at 6.0 ft														
-7.5														
-10.0														
-12.5														
-15.0														
-17.5														

SOIL BORING LOG 1470.01 GRU GEOTECHNICAL TEMPLATE.GDT 5/13/08

Groundwater Observations	Advancement Method	Notes
No groundwater encountered	0 - 6 ft: Machine Auger	
	Abandonment Method	
	Boring backfilled with soil cuttings	

SoilTech Consultants, Inc.

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-18
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/25/07
DRILLER: J. Ray
TECHNICIAN: M. Huff & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 545+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	O Cohesion / Δ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
							PL	MC%	LL					
			Surface Elevation: 260.6 ft											
0.0			Concrete (5.5")											
2.5			Stiff brown silty clay (CL), moist A-6 (17)	19 b/f 7-10-9		17				15				
5.0				8 b/f 4-4-4		19								
				16 b/f 4-7-9		20								
			Terminal Depth at 6.0 ft											

5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-19
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/29/07
DRILLER: J. Ray
TECHNICIAN: D. Craft & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 560+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry		PL	1	2	3
			Surface Elevation: 271.8 ft						MC%	LL			
			Asphalt (4")							20	40	60	80
			Medium dense tan sandy gravel (SUBBASE) (6") - with clay										
			Stiff tan silty clay (CL), moist A-6 (15)		15 b/f 4-5-10		20		16				
2.5					14 b/f 9-7-7		20						
			- with gravel below 4"										
5.0					13 b/f 6-6-7		17						

Terminal Depth at 6.0 ft

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

No groundwater encountered 0 - 0 ft. Machine Auger

Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-20
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/29/07
DRILLER: J. Ray
TECHNICIAN: D. Craft & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 575+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / Δ Triaxial (ksf)			
							Moist	Dry		PL	1	2	3
									MC%	LL			
			Surface Elevation: 227.6 ft										
			Asphalt (4")										
			Medium dense tan clay gravel (SUBBASE) (6")										
			Very stiff tan silty clay (CL), moist A-4 (10)	18 b/f 10-10-8		15			10		●	1	2
-2.5			Medium dense tan clayey silt (ML), moist A-4/A-6 (14)	11 b/f 6-6-5		20					●	3	4
-5.0				12 b/f 5-6-6		20					●	5	6
Terminal Depth at 6.0 ft													

7.5

10.0

12.5

15.0

17.5

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-21
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/29/07
DRILLER: J. Ray
TECHNICIAN: D. Craft & T. Whitaker
ENGINEER: C. Furlow

Location: South Loop Road Station 594+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
										PL	MC%	LL		
Surface Elevation:	265.9 ft													
Asphalt (3")														
Medium dense tan clay gravel (SUBBASE) (6")														
- with sand														
Medium dense tan clayey silt (ML), moist A-6 (12)				11 b/f 5-5-6		18								
- loose below 2.5'				8 b/f 4-4-4		17					11			
				5 b/f 2-2-3		19								
Terminal Depth at 6.0 ft														
7.5														
10.0														
12.5														
15.0														
17.5														

5/13/08

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

No. B-22

SHEET 1 OF 1

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

PROJECT NO.: 1470.01

DATE: 5/29/07

DRILLER: J. Ray

TECHNICIAN: D. Craft & T. Whitaker

ENGINEER: C. Furlow

Location: South Loop Road Station 635+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)		Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry		PL	1	2	3
									MC%		20	40	60
Surface Elevation:	292.0 ft												
Asphalt (4")													
Stiff tan silty clay (CL), moist A-4/A-6 (11)				9 b/f 4-4-5		22							
Medium dense tan clayey silt (ML), moist A-7 (19)			- loose below 4.5'	11 b/f 5-5-6		22			18				
				6 b/f 3-3-3		22							
Terminal Depth at 6.0 ft													
-7.5													
-10.0													
-12.5													
-15.0													
-17.5													

TERMINAL DEPTH AT 6.0 FT

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-23
SHEET 1 OF 1

PROJECT NO.: 1470.01
DATE: 5/29/07
DRILLER: J. Ray
TECHNICIAN: D. Craft & T. Whitaker
ENGINEER: C. Furlow

Location: Connecting Avenue Station 102+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			○ Cohesion / Δ Triaxial (ksf)			
							Unit Weight (pcf)		Plasticity Index	1	2	3	4
							Moist	Dry		PL	MC%	LL	
			Surface Elevation: 207.0 ft										
			Asphalt (3")										
			Medium dense tan clay gravel (SUBBASE) (6")										
			Medium dense tan clayey silt (ML), moist A-4 (6) - loose 2' - 4'	14 b/f 7-7-7		23			8	1	2	3	4
2.5				9 b/f 4-4-5		12				●			
5.0				11 b/f 4-5-6		13				●			
Terminal Depth at 6.0 ft													
-7.5													
-10.0													
-12.5													
-15.0													
-17.5													

Groundwater Observations

Advancement Method

Notes

No groundwater encountered

0 - 6 ft: Machine Auger

Abandonment Method

Boring backfilled with soil cuttings

SOIL BORING LOG

PROJECT: Geotechnical Investigation
Vicksburg Military Park
Vicksburg, Mississippi

CLIENT: Neel-Schaffer, Inc.
Jackson, Mississippi

No. B-24
SHEET 1 OF 1

PROJECT NO.: 1470.01

DATE: 5/29/07

DRILLER: J. Ray

TECHNICIAN: D. Craft & T. Whitaker

ENGINEER: C. Furlow

Location: Connecting Avenue Station 119+00

LABORATORY DATA

Depth (ft)	Symbol	Samples	DESCRIPTION OF MATERIAL	Field Test Results	Undrained Shear Strength (ksf)	Moisture Content	Unit Weight (pcf)			Plasticity Index	○ Cohesion / △ Triaxial (ksf)			
							Moist	Dry	PI		1	2	3	4
			Surface Elevation: 205.9 ft							PL		MC%	LL	
			Asphalt (2.5")											
			Medium dense clay gravel (SUBBASE) (5.5")											
			Medium dense tan clayey silt (ML), moist A-6 (15)	18 b/f 5-8-10		14								
-2.5			- loose below 2.5'		6 b/f 4-2-4		21			12				
-5.0					7 b/f 2-3-4		24							
			Terminal Depth at 6.0 ft											
-7.5														
-10.0														
-12.5														
-15.0														
-17.5														

Geotechnical Template GDT 5/13/08

Groundwater Observations		Advancement Method	Notes
No groundwater encountered		0 - 6 ft: Machine Auger	
		Abandonment Method	
		Boring backfilled with soil cuttings	

SoilTech Consultants, Inc.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		SAND AND SANDY SOILS (LITTLE OR NO FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		SM	SILTY SANDS, SAND - SILT MIXTURES
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
		HIGHLY ORGANIC SOILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

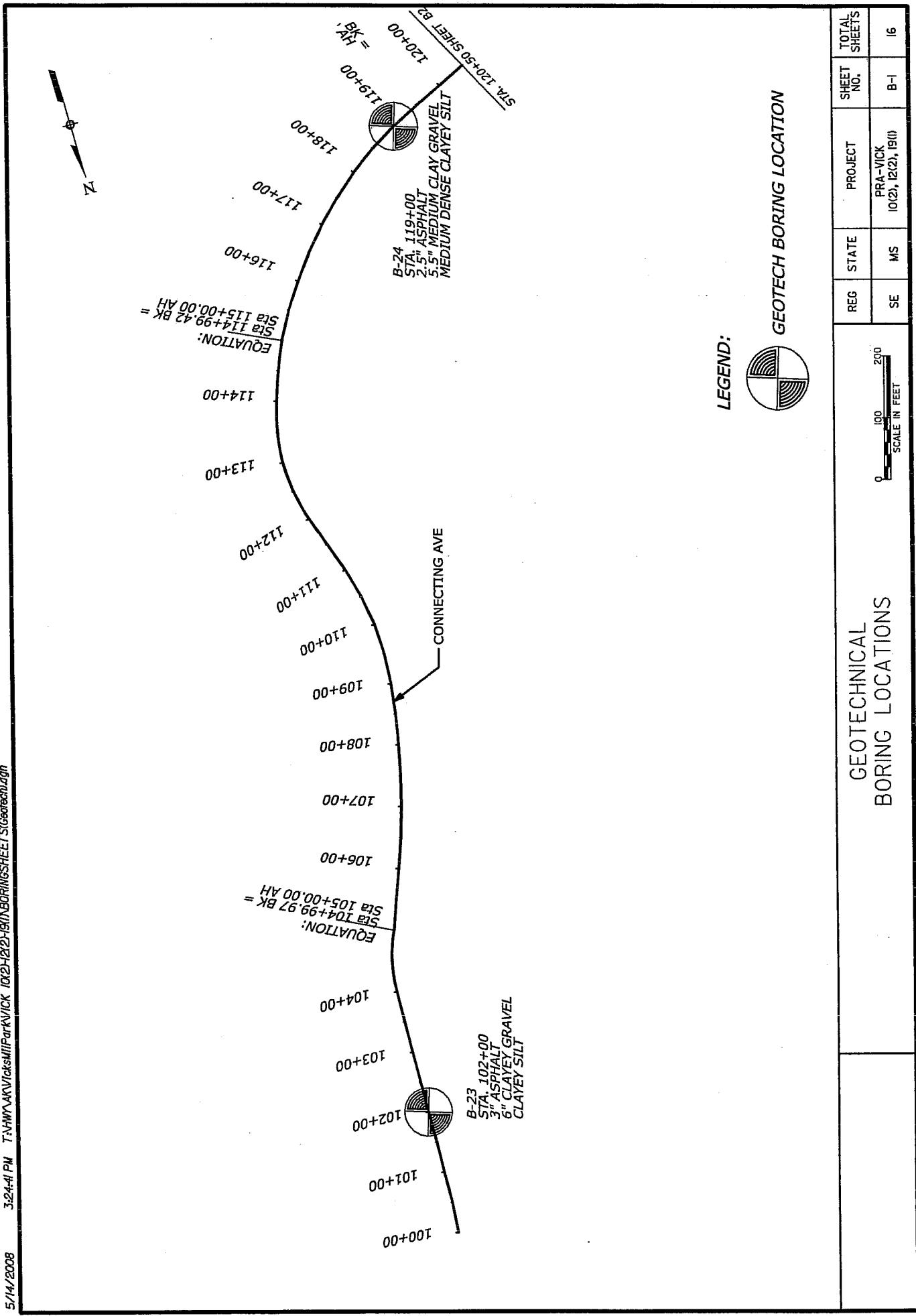
NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

APPENDIX A

Boring Location Maps

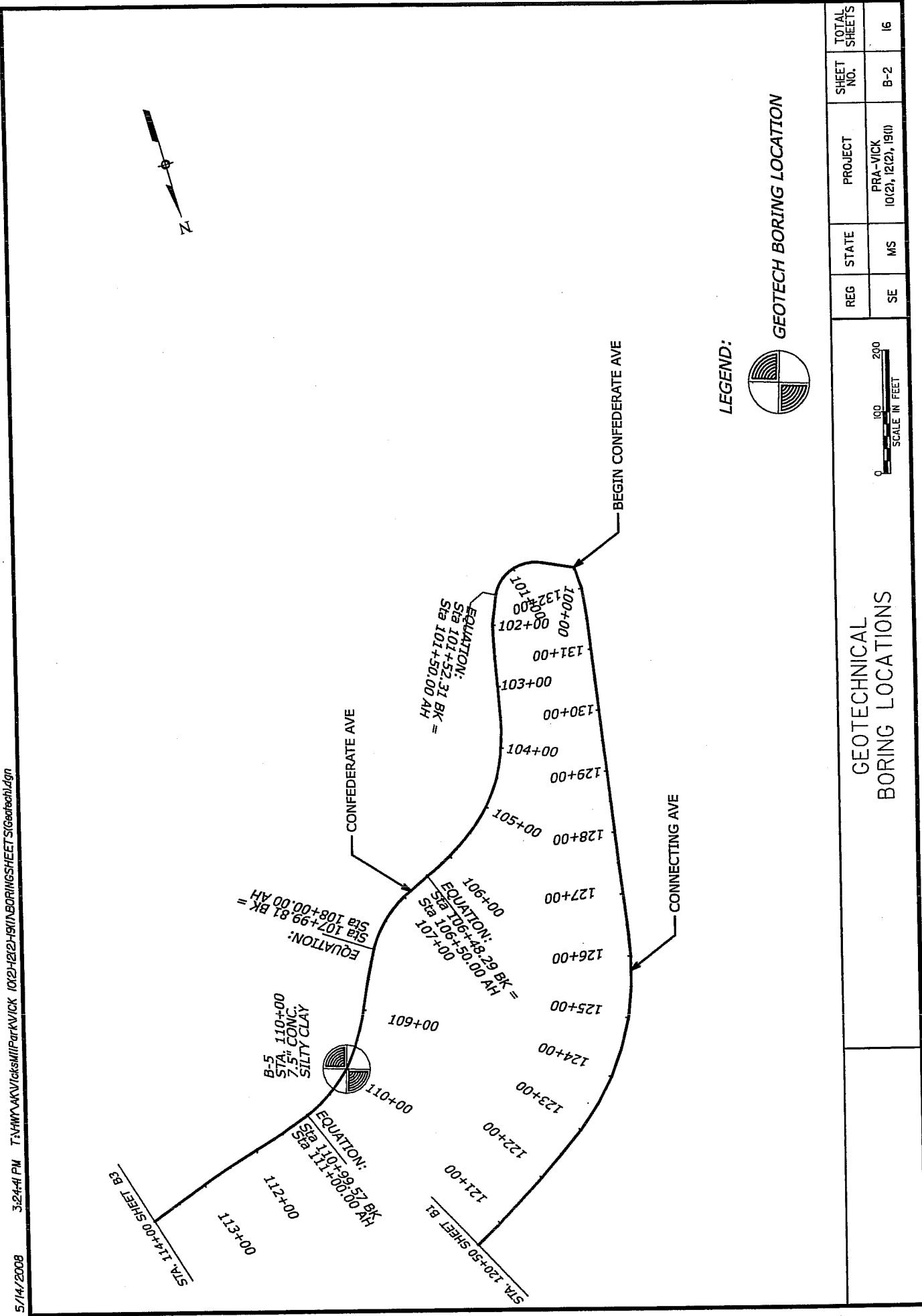
5/14/2008

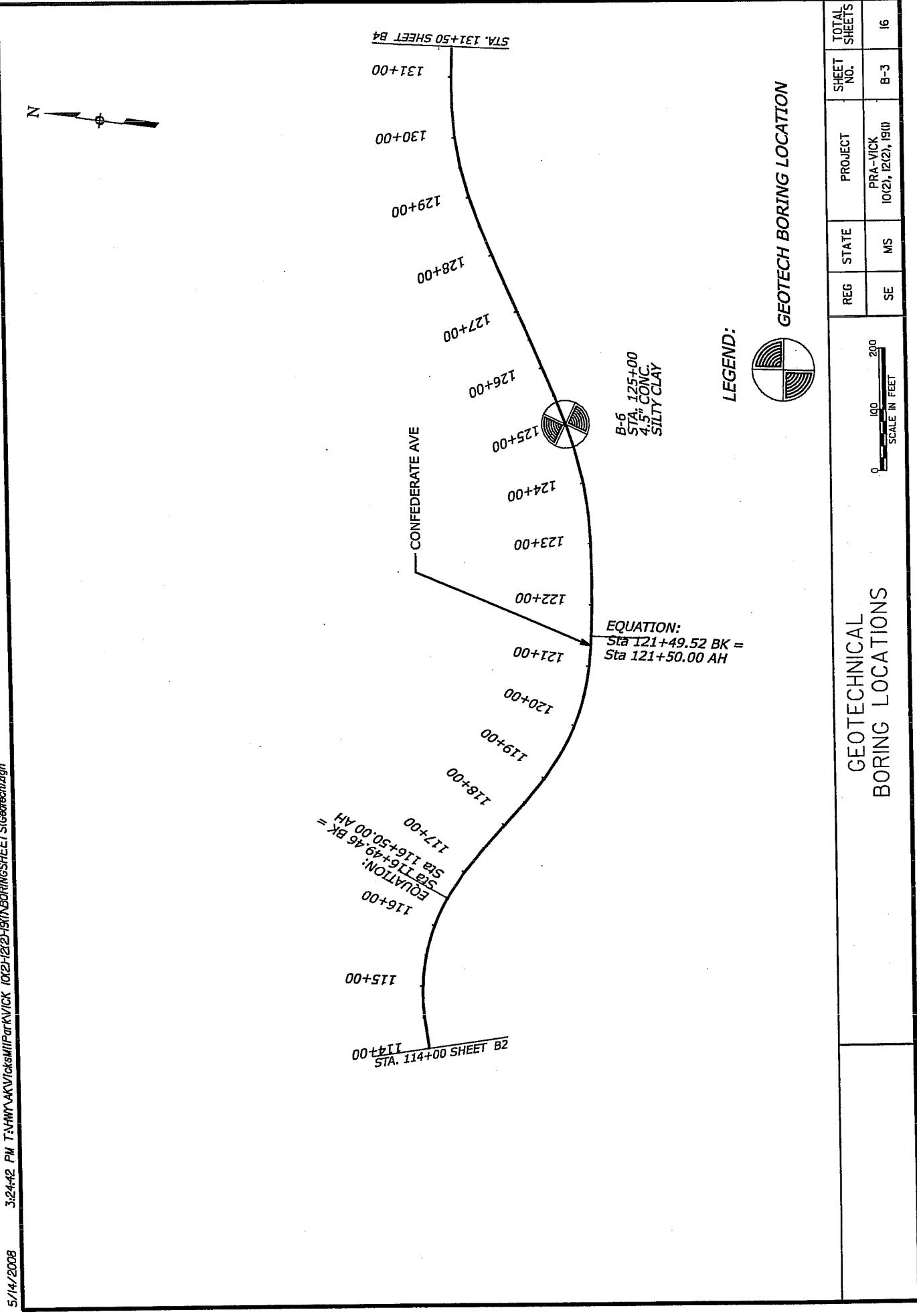
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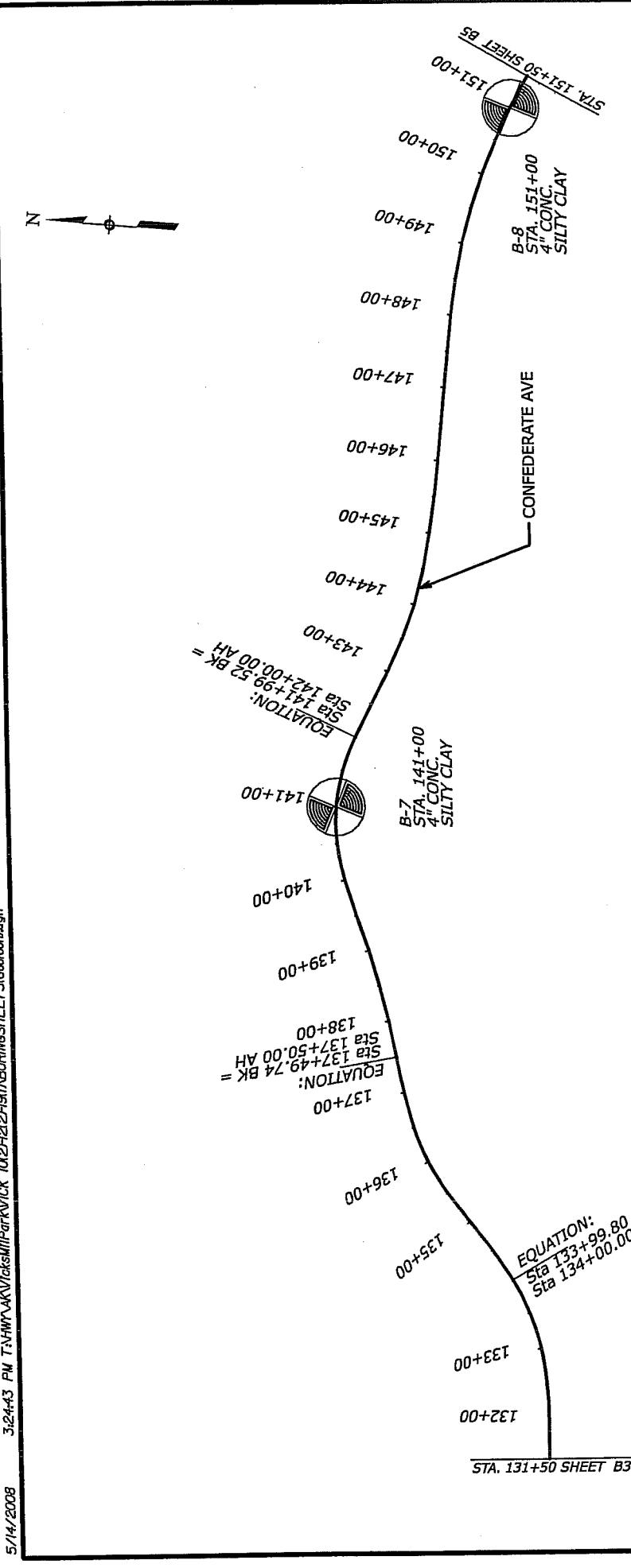


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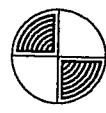
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LEGEND:



GEOTECH BORING LOCATION

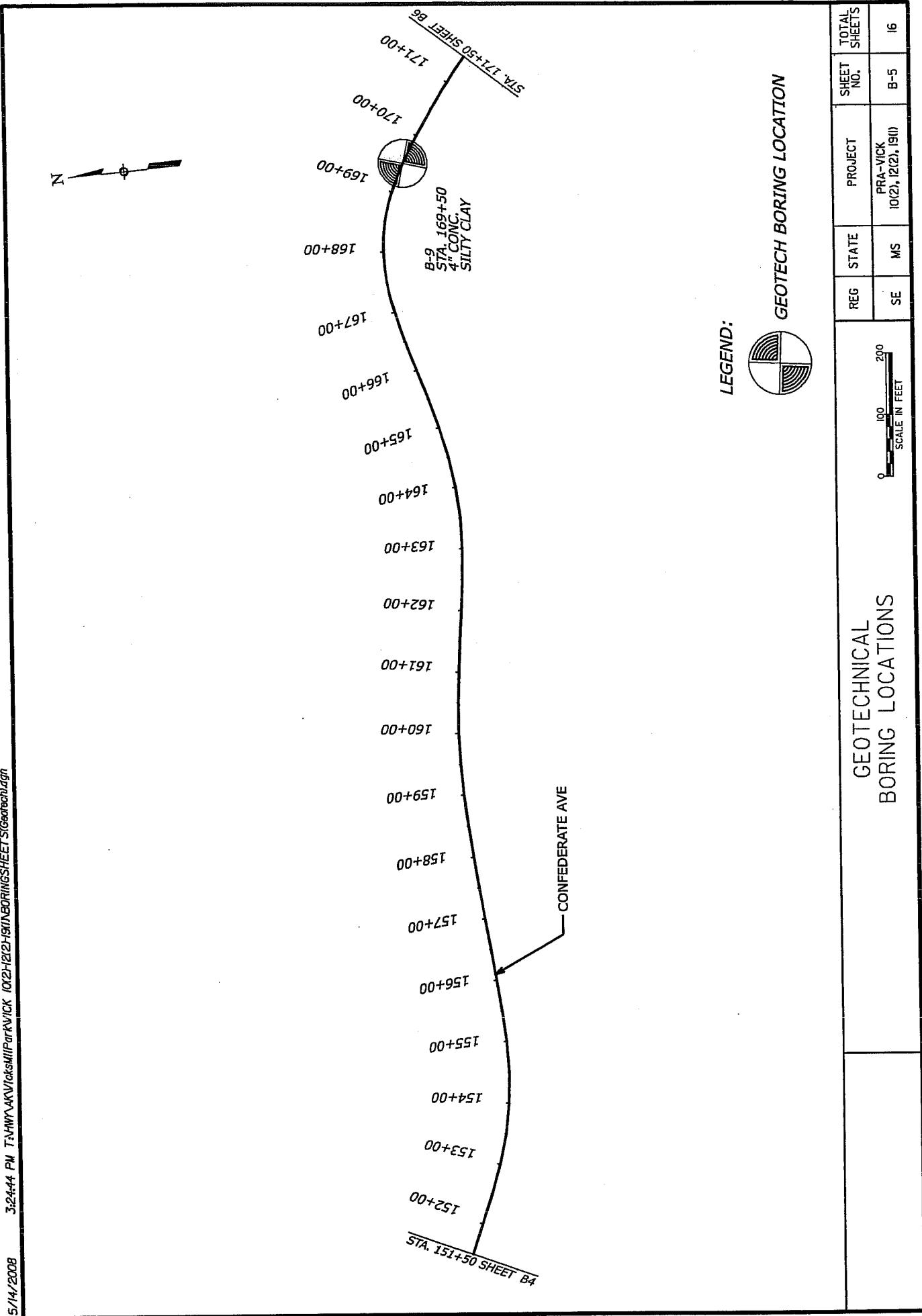
GEOTECHNICAL
BORING LOCATIONS

	REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	SE	MS	PRA-VICK 10(2), 12(2), 19(1)	B-4	16

SCALE IN FEET

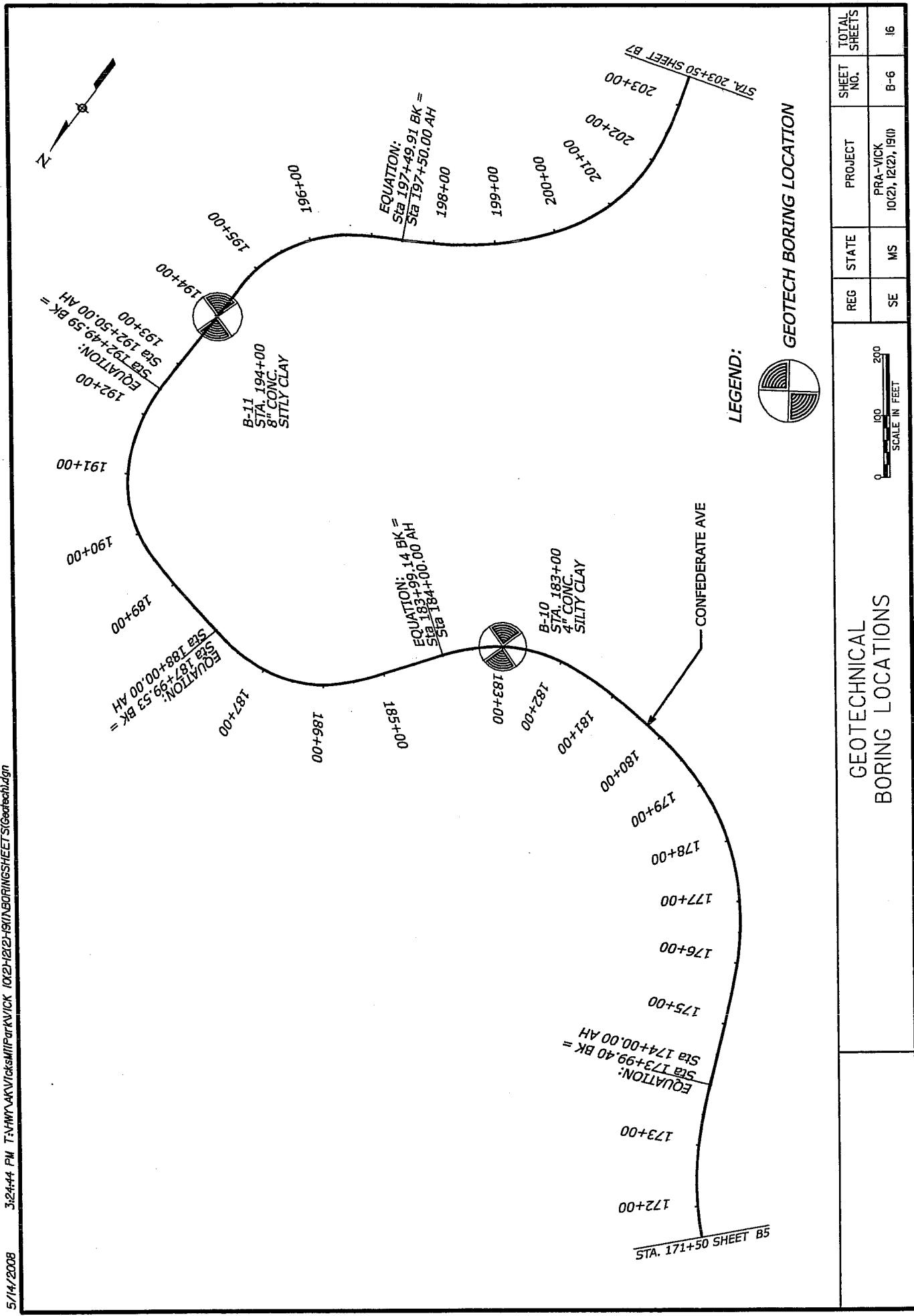
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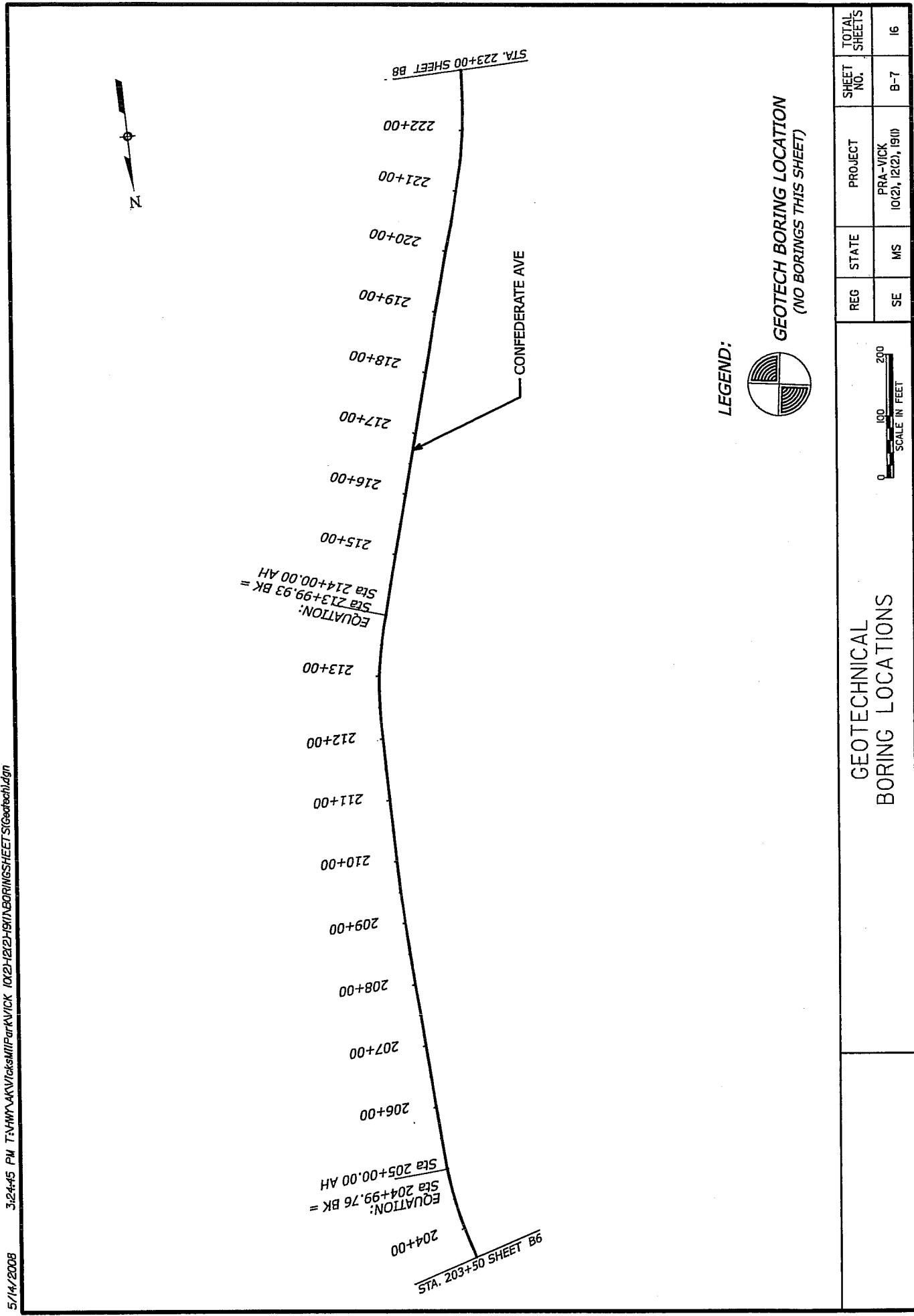
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5/4/2008

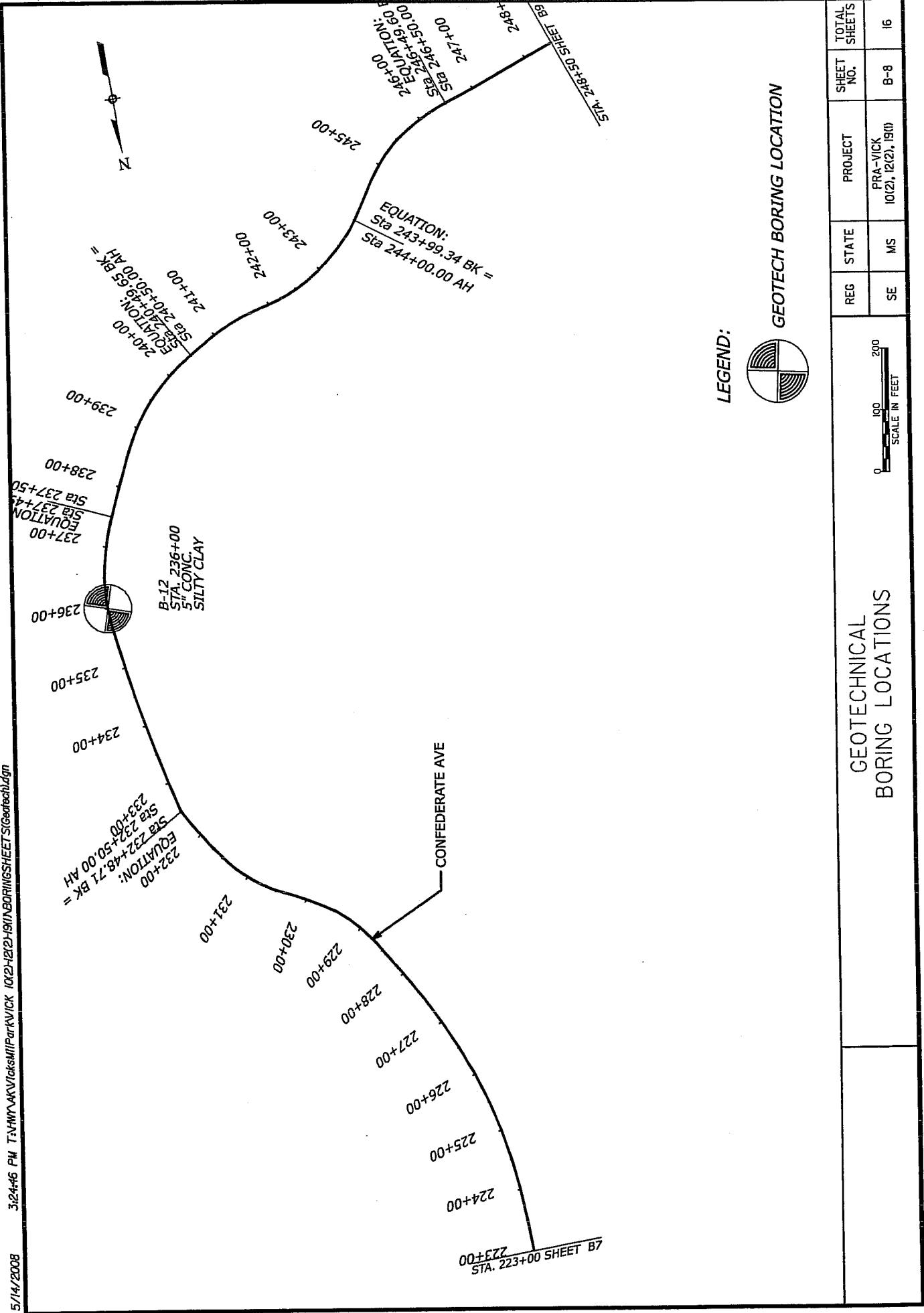
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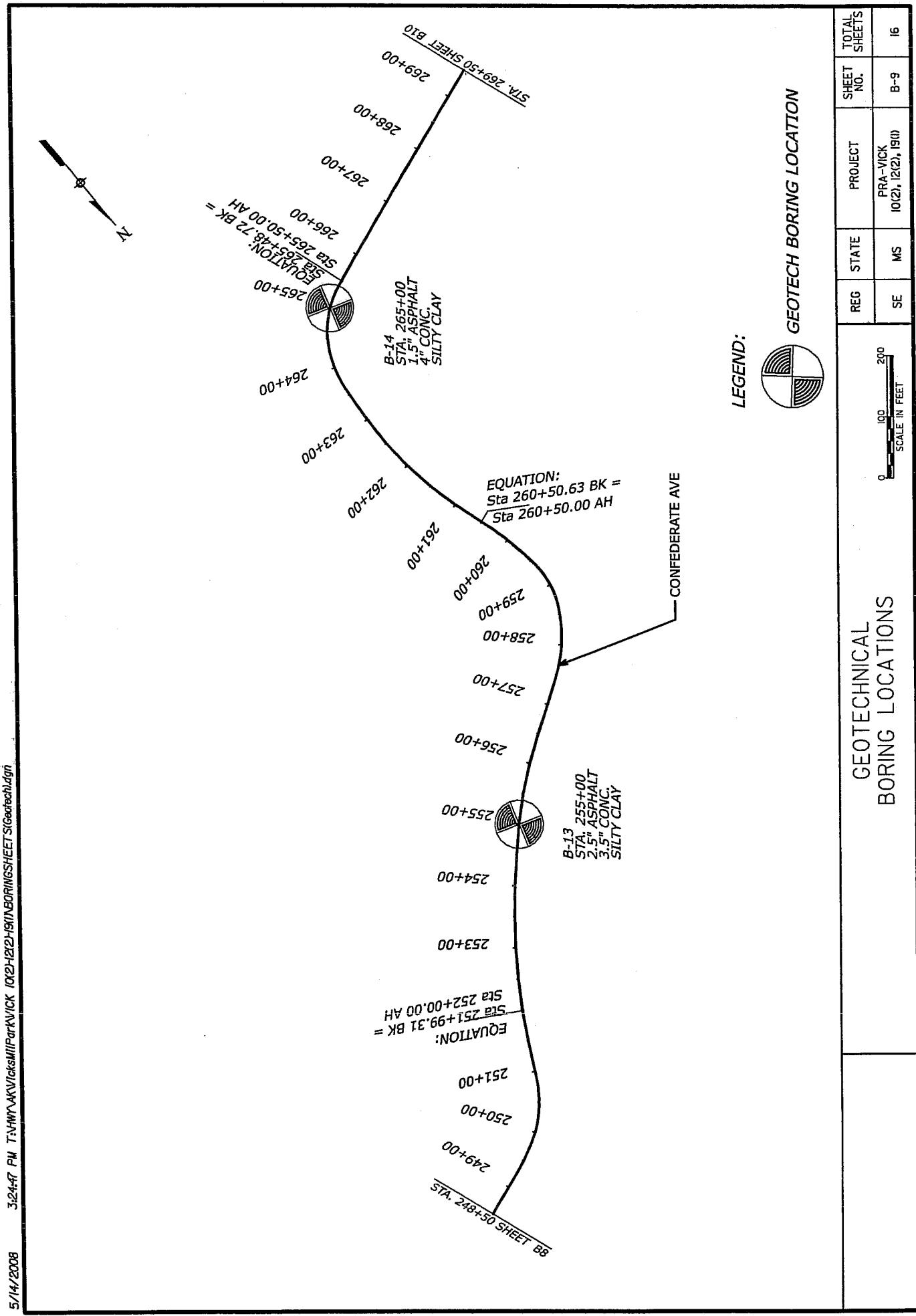


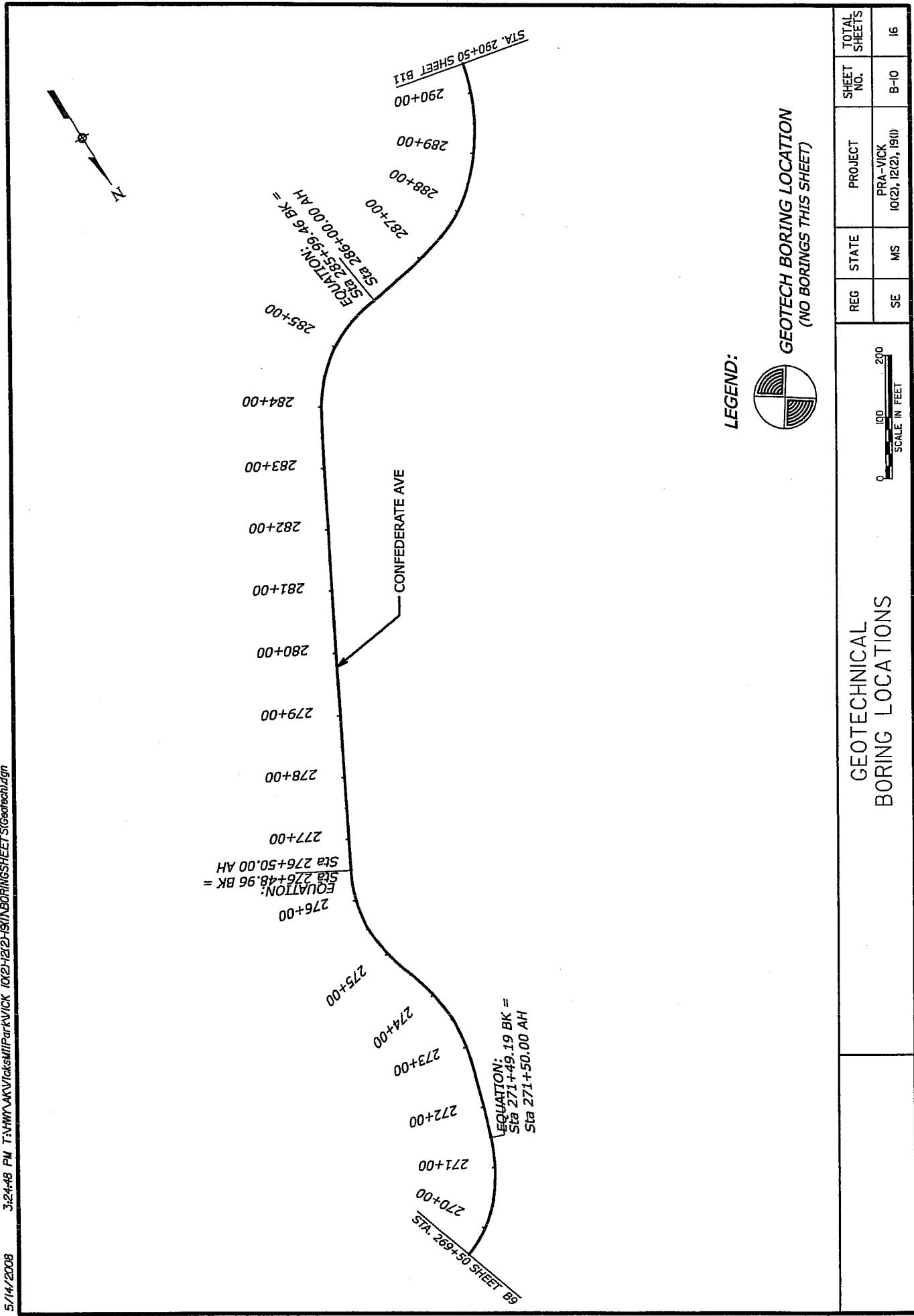


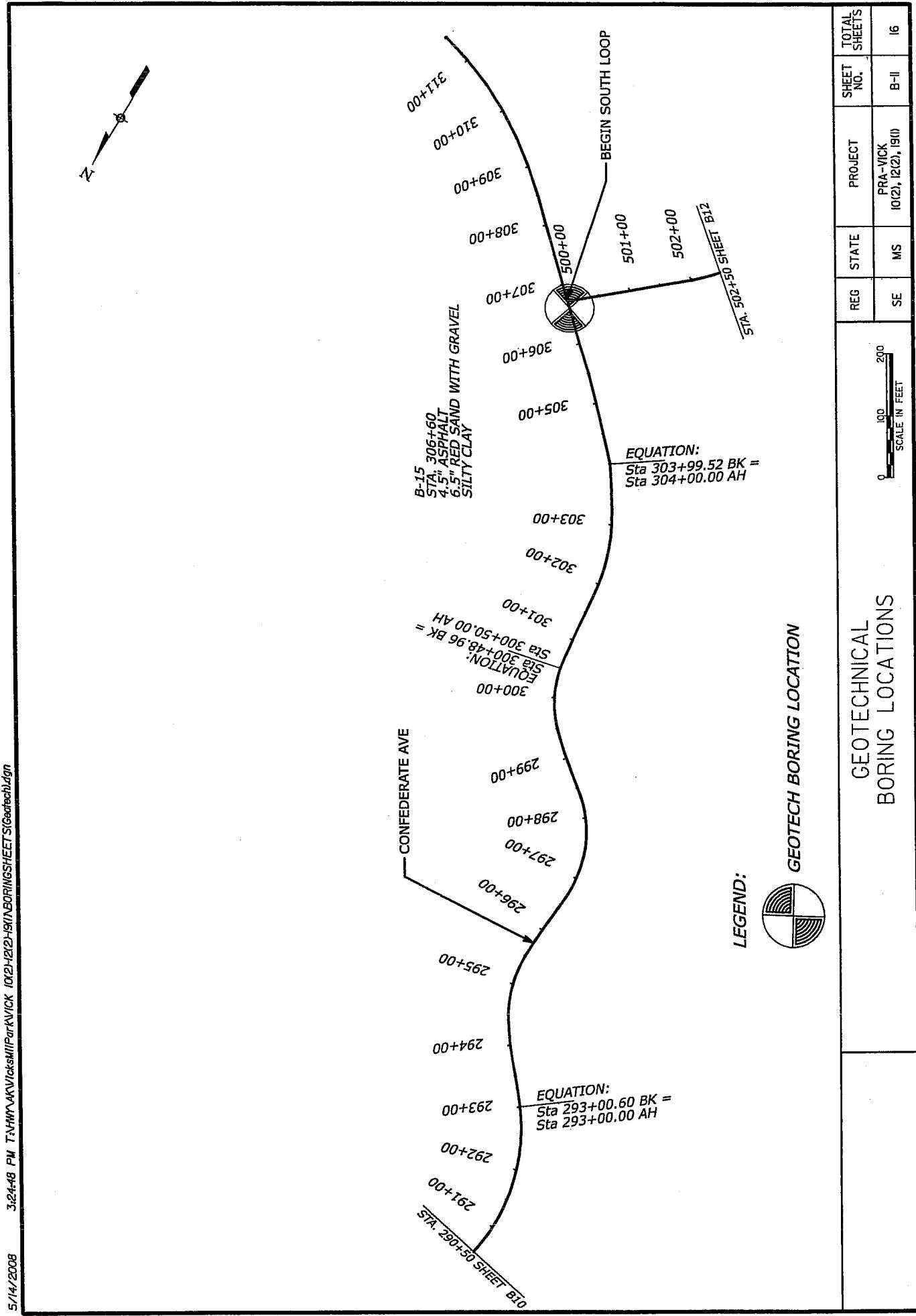
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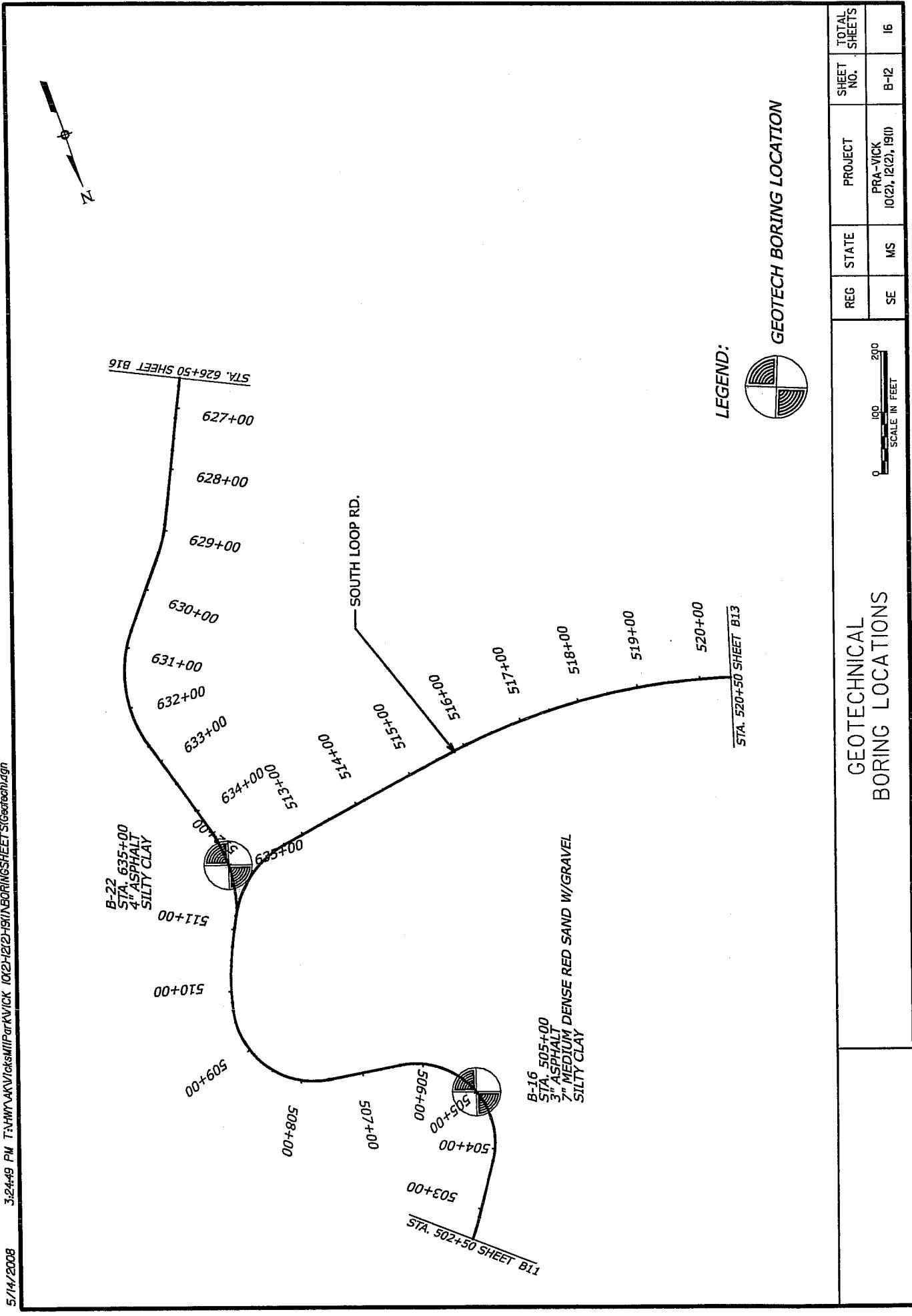
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5/14/2008

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